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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/079,012	02/18/2002	Donald Thomas Robertson	A01185	5172

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ROHM AND HAAS COMPANY
PATENT DEPARTMENT
100 INDEPENDENCE MALL WEST
PHILADELPHIA, PA 19106-2399

EXAMINER

BISSETT, MELANIE D

ART UNIT	PAPER NUMBER
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1711

DATE MAILED: 04/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No.	Applicant(s)	
	10/079,012	ROBERTSON, DONALD THOMAS	
	Examiner	Art Unit	
	Melanie D. Bissett	1711	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 February 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-5,7,8 and 10-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-5,7,8,10 and 11 is/are rejected.
- 7) ☒ Claim(s) 12 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>2/05</u> . | 6) <input type="checkbox"/> Other: _____ |

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1. The rejections from the prior Office action have been altered to reflect the amended claims.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1, 4, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roberts et al. in view of Göbel et al.

4. Roberts discloses coating compositions having very low surface energies comprising carboxyl-group containing aqueous polyurethane dispersions (abstract).

The coating compositions comprise about 80-99.9% of a polyurethane dispersion, 0.1-10% of a photostabilizer, 0-10% of a surfactant, 0-5% of a crosslinker, 0-20% of a silicone fluid antifouling agent, and other additives (col. 8 lines 10-36). Because the polyurethane dispersions have solids contents of 3-60%, the coating compositions comprise ~2.4-60% by weight of the polyurethane polymer (col. 11 lines 61-64).

Because water-dispersible components including carboxyl-group containing monomers are incorporated into the polymer backbone, it is the examiner's position that the polymers would have at least two carboxylic acid groups (col. 18 line 63-col. 19 line 65).

Crosslinking agents are preferably added in an amount of 2-5% and may include oxazoline groups (col. 29 lines 20-37). The antifouling agents are used to prevent organisms from adhering to the surface; thus, they act as slip aids (col. 29 lines 52-61).

Note also that silicone fluids are used as antifouling agents, where the applicant has

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taught silicone materials as slip aids. Several siloxane surfactant compounds are noted for use as defoaming agents and as flow and leveling agents; thus, these materials would act as wetting agents for the coatings (col. 29 line 62-col. 30 line 19). The reference teaches the use of UV stabilizers as the photostabilizers in preferable amounts of 1-10% (col. 30 lines 24-36).

5. Roberts applies as above, teaching the incorporation of carboxyl groups into a polyurethane for facilitating the dispersion with water but failing to teach the acid numbers achieved. Göbel teaches that polyurethane materials having acid numbers of 5-50 are preferred for polyurethane dispersions, showing that high amounts of carboxylic acids render the mixture too viscous while low amounts of carboxylic acids do not provide the mixture sufficient stability in water (col. 6 lines 15-39). Thus, it would have been prima facie obvious to incorporate carboxylic acids into the polyurethane of Roberts' invention in an amount sufficient to stabilize the aqueous dispersion without rendering the coating too viscous to process.

6. Regarding the process, Roberts exemplifies allowing the coatings to dry and cure at room temperature. When organic solvents are used, Roberts teaches drying the films by applied heat and vacuum first (col. 29 lines 1-9). This would result in a process of drying the films and then allowing the films to cure.

7. Regarding the substrates, the coatings are noted as applicable to glass, metal, wood, and plastic substrates (col. 8 lines 46-50). Examples show the application to PTFE, a thermoplastic polyolefin (examples 7A-20A, 25A).

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8. Regarding the claimed friction coefficient, Roberts has taught the claimed coating composition and has also taught that the coatings of the invention necessarily have low surface energies (col. 9 lines 36-47). Because the binder and additives used in Roberts' invention are the same types of binder and additives employed by the applicant, it is the examiner's position that the coatings of Roberts' invention would inherently possess the claimed friction coefficient.

9. Regarding claim 11, the terms "aliphatic" and "aromatic" are given their broadest interpretation. It is the examiner's position that silicon and other atoms are not excluded from the backbone of the polymer by the term "aliphatic" or "aromatic". Rather, the terms describe the saturation or presence of aromatic rings in the polymer structure. Since the applicant has not defined the terms in the specification to limit the polymers to contain certain amounts of aliphatic structure or aromatic structure, it is also the examiner's position that the polymers are not limited to wholly aromatic or wholly aliphatic structures. Roberts discloses a number of polyurethane materials, including aliphatic and aromatic structures. Example 1 uses aliphatic monomers to obtain an aliphatic structure.

10. Claims 5, 7-8, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roberts et al. in view of Göbel et al. as applied above and further in view of Brandt.

11. From a prior Office action:

Roberts applies as above, teaching that the coatings are applied to boat hulls, byoys, pipes, rope, piers, and other marine applications, but failing to teach specific rubber or elastomeric substrates. Brandt teaches elastomeric rope having an outer EPDM layer, where the rope is used in marine environments (abstract; col. 6 lines 41-62). The rope stiffens as with increasing

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elongation, making it more difficult to stretch beyond the desired length (abstract). It is the examiner's position that it would have been prima facie obvious to apply the coatings of Roberts' invention to the rope of Brandt's invention to product a rope of improved strength properties resistant to fouling.

12. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Roberts et al. in view of Gobel et al. as applied above and further in view of *Hawley's Condensed Chemical Dictionary*.

13. From a prior Office action:

Regarding the matting agents, it is noted that matting or flattening agents are known for their art-recognized purpose of reducing gloss of coatings. See *Hawley's Condensed Chemical Dictionary*. Roberts teaches the use of pigments and dyes for altering appearance but does not specify the use of matting agents. It is the examiner's position that it would have been prima facie obvious to use a sufficient amount of a matting agent in the coatings of Roberts' invention to provide a desired appearance.

Allowable Subject Matter

14. Claim 12 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

15. The following is a statement of reasons for the indication of allowable subject matter:

16. The closest prior art, Roberts et al., discloses aqueous polyurethane anti-fouling coatings containing the claimed additives. The coatings are applied to substrates, including plastic substrates for marine applications. However, the reference does not disclose the claimed weatherstrip, wiper blade, or gasket articles containing an

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elastomeric substrate and the claimed coating. It is the examiner's position that the articles of claim 12 provide a novel and unobvious step over the prior art.

Response to Arguments

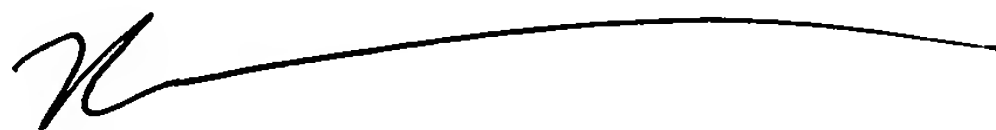
17. Regarding the applicant's argument that the Roberts and Göbel references are not combinable because one is drawn to low surface energy coatings and the other is drawn to base coatings for further clear coatings, it is noted that both references are drawn to carboxyl-containing polyurethane dispersions for weatherable substrates. Göbel has been used to teach the conventionality of controlling the acid number of the polyurethane to a value of 5-50 for the purposes of optimizing viscosity and stability in water. Since the coatings of Roberts' invention are also aqueous coatings, it would have been obvious to optimize stability and viscosity of the anti-fouling coatings. One of ordinary skill in the art would recognize from the prior art that controlling the acid number would serve to improve these properties.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melanie D. Bissett whose telephone number is (571) 272-1068. The examiner can normally be reached on M-F 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (571) 272-1078. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Melanie D. Bissett
Patent Examiner
Art Unit 1711

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